

REMARKS

In accordance with the foregoing, a substitute specification is provided, FIGs. 14, 16, and 24 and claims 2, 3, 22, 23, 25, 26, 36, 40 are amended, and new claims 54-56 are added. No new matter is added and entry of the substitute specification, amended drawings, amended claims and new claims are requested.

Claims 24 and 45-53 are cancelled without prejudice or disclaimer.

Claims 1-23, 25-44 and 54-56 are pending and under consideration.

In the Office Action mailed March 30, 2004, claims 1-23 and 25-44 are rejected under 35 U.S.C. §102(b) as being anticipated by AutoCAD (Action at pages 8-12 and 13-19); and claims 1, 2, 22, 23, and 25 under 35 U.S.C. 102(b) as anticipated by Cragun.

The foregoing rejections are respectfully traversed

ITEMS 3-4: OBJECTION TO THE SPECIFICATION

The Examiner objects to the specification because of informalities, and indicates that a substitute specification is required. (Action at pages 2-3).

A clean copy and a marked copy of a substitute specification are provided herein. The substitute specification contains no new matter, and entry of the substitute specification and withdrawal of the objection is requested.

ITEMS 5-6: REJECTION OF CLAIMS 1-23 AND 25-44 UNDER 35 U.S.C. 112, FIRST PARAGRAPH

The Examiner rejects claims 1-23 and 25-44 under 35 U.S.C. 112, first paragraph contending they fail to comply with the enablement requirement. The Examiner contends that

. . . the specification does not disclose the methodology for actually managing, implementing or updating the displaying of a body section in three-dimensional space by a computer. No algorithms, techniques or flow charts are disclosed. While the specification on page 11, for example, makes reference to, management unit, implementing unit, and updating unit. It does not disclose specifically how to perform management, implement, and update. . . .

the specification does not disclose the methodology for actually disclosing the "set displaying plane according to the management data of the management means". No algorithms, techniques or flow charts are disclosed. While the specification on page 11, for example, makes reference to, the implementing unit 12 manages and generates a section of a body in the three-dimensional space cut by the set displaying plane according to the management data of the management unit. It does not disclose specifically how to perform a "set displaying plane"

(Action at pages 4-5).

EXAMINER NOT MET INITIAL BURDEN TO ESTABLISH REASONABLE BASIS TO QUESTION ENABLEMENT

Applicants submit that the Examiner has not made a *prima facie* case of lack of

enablement as required. As set forth in MPEP §2164.04:

In order to make a rejection, the examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention. *In re Wright*, 999 F.2d 1557, 1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993).

Applicants submit that all the claims satisfy 35 U.S.C. 112, first paragraph and are enabled for one skilled in the art in view of the specification and drawings. For example, the management means are discussed in detail at least at pages 13-14, starting at line 26 and pages 21-22 starting, at line 23; the implementing means are discussed at least at pages 14, lines 2-6 and lines 16-19 and page 25, lines 5-25; and the updating means are discussed at least at pages 14, lines 7-15, and page 32, lines 4-29. Further, discussion of the "set displaying plane" is found in the specification at least at pages 18-19, starting at line 23. (See, in addition FIGs. 5-13 and 46-62 of the present application in further support of the above cited matter).

CONCLUSION

Applicants respectfully submit that the specification and drawings of the present application provide sufficient enabling description for one skilled in the art to make and use the present invention.

Since claims 1-23 and 25-44 are in compliance with 35 U.S.C. §112, first paragraph, and the Examiner has not met the initial burden as required by the MPEP, withdrawal of the rejection is requested.

ITEMS 7-8: REJECTION OF CLAIMS 1-23 AND 25-44 UNDER 35 U.S.C. 112, FIRST PARAGRAPH

The Examiner rejects claims 1-23 and 25-44 under 35 U.S.C. 112, first paragraph contending they fail to comply with the written description requirement.

The Examiner contends that "... the specification does not disclose the methodology for actually managing, implementing or updating the displaying of a body section in three-dimensional space by a computer."

As discussed above in the traverse of the items 5-6 rejection of claims 1-23 and 25-44 under 35 U.S.C. 112, first paragraph, Applicants respectfully submit that the specification and drawings of the present application provide sufficient description for one skilled in the art to make and use the present invention. In addition, Applicants submit that features of how "information are managed by three-dimensional CAD tool, how to generate one section using management data and displaying the section on this display screen, or how to update managed information" is discussed, for example, at least at page 18, lines 3-7 and at page 24, lines 5-14.

The Examiner rejects claims 6 and 29 for including a "negative limitation." (Action at page 7). Claims 6 and 29 recite, using claim 6 as an example, that "implementing means displays the set displaying plane with a transparent color, when the three-dimensions section is not displayed."

Applicants respectfully submit that the Examiner contention is incorrect. As set forth in MPEP 2173.05 (i) "there is nothing inherently ambiguous or uncertain about a negative limitation. So long as the boundaries of the patent protection are set for the definitely, albeit negatively, the claims comply with the requirements of 35 USC § 112, second paragraph." Moreover, claims 6 and 29 are supported in the originally filed specification at least at page 11, lines 24-27 and page 52, line 6-10.

CONCLUSION

Applicants respectfully submit that the specification and drawings of the present application provide sufficient description for one skilled in the art to make and use the present invention.

Since claims 1-23 and 25-44 are in compliance with 35 U.S.C. §112, first paragraph, withdrawal of the rejection is requested.

ITEM 9: REJECTION OF CLAIMS 2, 3, 25, AND 26 UNDER 35 U.S.C. 112, SECOND PARAGRAPH

The Examiner rejects claims 2, 3, 25, and 26 under 35 U.S.C. 112, second paragraph contending the claims are indefinite. (Action at pages 7-8).

Claims 2 and 25 are amended to replace the term --set displaying information-- with the term "attribute information." Claims 3 and 36 are amended to replace the term --operating plate-- with "operating plane."

Applicants submit claims 2, 3, 25, and 26, all as amended, are definite and request withdrawal of the objection.

ITEM 10: REJECTION OF CLAIMS 6 and 29 UNDER 35 U.S.C. 112, SECOND PARAGRAPH

The Examiner rejects claims 6 and 29 regarding the recited "negative limitation." (Action at page 8). As submitted above, the claims 6 and 29 as written are in compliance with 35 U.S.C. 112 as set forth by MPEP 2173.05 (i). Withdrawal of the rejection is requested.

ITEM 12-16: REJECTION OF CLAIMS 1-23 AND 25-44 UNDER 35 U.S.C. §102(b) AS BEING ANTICIPATED BY AutoCAD (AutoCAD User's Guide, AutoDesk Dec 5th, 1997)

ITEMS 17-18: REJECTION OF CLAIMS 1, 2, 22, 23, AND 25 UNDER 35 U.S.C. §102(b) AS BEING ANTICIPATED BY CRAGUN (U.S.P. 5,771,044)

The Examiner rejects claims 1-23 and 25-44 under 35 U.S.C. §102(b) as being

anticipated by AutoCAD (Action at pages 8-12 and 13-19). The Examiner rejects claims 1, 2, 22, 23, and 25 under 35 U.S.C. 102(b) as anticipated by Cragun. (Action at page 12).

According to aspects of the present invention, a reference plane is set parallel to a surface of a part (Fig. 15). Further, one or plural set displaying planes parallel to the reference plane can be set (Fig. 18,19 and 20). In addition, the reference plane and the set displaying plane can be set to child parts (Fig. 20).

When a parent part moves or rotates, respective child parts of the parent move or rotate according to the parent's movement or rotation. Corresponding to the movement or rotation of the parts, a corresponding set that displays planes moves or rotates. The child part and its' corresponding reference plane and set displaying plane can move or rotate by themselves, independently of the parent part, while keeping a relation to the parent part.

When plural set displaying planes are set to one of the parts, a parent and child relation can be set to the planes. (See, for example, FIG. 22 of the present application). Further the planes of the child parts move or rotate according to the parent part's movement or rotation. (See, for example, FIGs. 25 and 26 of the present application).

During the movement and rotation of the parent and child parts, allowable regions are defined for the parts, and the movement or rotation areas are limited according to the respective limits of the allowable regions (See, for example, page 22, lines 4-8 of the present application). The allowable regions are registered in a the space structure table registering the upper limit value and lowest limit value of the region.

On cross-sections of the parts that are cut by the set displaying plane, parts that are further in a plane direction, e.g., in a "direction of generated section" in a space structure table (See, for example, space structure table 31 as shown in Fig. 3 of the present application) than the set displaying plane are displayed on a sectional view.

According to aspects of the present invention, the direction of the set displaying plane can be changed by changing the registration of the direction on the space structure table.

According to aspects of the present invention, the displayed parts are defined by a method as shown in FIG. 28 and the flowchart of FIG. 7. That is, in the case shown in FIG. 28A, parts that are right of plane 2 are displayed, in the case of Fig. 28B, parts that are right of plane 3 are displayed. In the case of Fig. 28C, parts between planes 1 and 2 are displayed, and in the case of FIG. 28D, parts right of planes 2 and 3 are displayed.

As discussed above, aspects of the present invention enable a control of viewing is of the

section of parts with setting and changing the set displaying planes.

AutoCad discusses (pages 525-532) three-dimensional viewing, and viewing addition of new objects, editing objects, or generating a hidden line, shaded view, or rendered view. In addition, AutoCad discusses (pages 425-426) that a datum can be used to make measurements or verify dimensions. Further, AutoCad discusses (pages 531-532) setting a view of clipping planes to remove objects from the front and back of a plane perpendicular to the view direction and removal of hidden lines. AutoCad also discusses (page 554) a handler rotate around an axis. But it does not disclose that a set displaying plane rotates according to the rotation of the part.

Cragun discusses (col. 2, lines 40-45) a method for placing tolerances on three dimensional objects so that the information can be electronically transferred along with the other data for a drawing in a computer aided design system. Cragun discusses that (col. 2, lines 40-45) a number of datum linkage relationships are created to allow the computer aided drafting system to retrieve which datum symbol applies to which datum, and the mathematical description of the datum. Cragun also discusses that (col. 5, lines 58-60) that linkage relationships are simply a set of pointers that link the data items.

The combination of AutoCad and Cragun would be a three-dimensional viewing, and viewing addition of new objects, editing objects, or generating a hidden line, shaded view, or rendered view including placing tolerances on three dimensional objects so that the information can be electronically transferred along with the other data for a drawing in a computer aided design system.

The independent claims 1, 2, 22, 23, and 25, using independent claim 1 as an example, recite "management means for managing attribute information of parts and arranging information of a set displaying plane for making a body section defined based on a plane of one of a parts; implementing means for generating a three-dimensional section of the body cut by the set displaying plane according to the management data of the management means, and for displaying the three dimension section with the set displaying plane on the display screen; and up-date means for up-dating the arranged information managed by the management means by corresponding to the transfer or rotation of the set displaying plane."

That is, as discussed above, in contrast to the foregoing references relied upon, the present invention enables a control of viewing of the section of parts with setting and changing the set displaying planes.

In contrast to the foregoing references relied upon, independent claim 2 recites a device

including in particular "management means for managing attribute information of parts and one or plural kinds of attribute information of set displaying plane for making a body section with the relation between the parts and the set displaying information."

In contrast to the foregoing references relied upon, independent claim 22 recites a method for displaying a body section including "managing management data of one or plural set displaying planes for cutting the body to make the section and of the attribute information of parts and of set displaying planes with the relation information with the parts and set displaying plane, which are made by the same data structure; registering the management data; displaying the section and set displaying plane with the relation information; and updating the managing data by arranging the relation among the parts and the set displaying plane managed data by corresponding to the designation of transfer or rotation of the set displaying plane or parts."

In contrast to the foregoing references relied upon, independent claim 23 recites a computer-readable storage for storing the program for controlling a computer to perform displaying a body section in a virtual three-dimensional space, by accessing to access a managing unit managing the management data of attribute information of parts and the attribute information of set displaying planes with the relation information between the parts and set displaying plane."

In contrast to the foregoing references relied upon, independent claim 25 recites a device for displaying a body section including "a management unit managing attribute information of parts and one or plural kinds of attribute information of set displaying plane for making a body section by definition the relation between the parts and the set displaying information with the same data structure for the parts; wherein the attribute information comprises location information and posture information, and the attribute information of the set displaying plane comprises direction of the set displaying plane."

Moreover dependent claims recite patentably distinguishing features of their own. For example, claim 8 recites "the up-date means updates the child information with the parent information according to the change of the parent information, when the relation between the parent and child is defined; the implementing means transfers or rotates the child plane corresponding to the transfer or rotate of the parent plane."

Withdrawal of the foregoing rejections and allowance of claims 1-23 and 25-44 is respectfully requested.

NEW CLAIMS 54-56

New dependent claim 54 recites a device for displaying a body section in a virtual three-dimensional space by a computer, wherein the managing data comprises ID of the data record, name, kinds of parts, the reference plane and the set displaying plane, pointers to parents of the parts, a reference plane, fundamental positions, fundamental postures, positions relative to parents, postures relative to parents, allowable regions of existence, directs of set displaying plane.

New dependent claim 55 recites a device for displaying a body section in a virtual three-dimensional space by a computer wherein a set displaying plane having the same plane direction with the plane direction of a reference plane has a cross section cut with the set displaying plane displays parts existing far from the set displaying plane in direction of the reference plane.

New dependent claim 56 recites a device for displaying a body section in a virtual three-dimensional space by a computer; wherein upon plural set displaying planes having all have the same plane directions, a cut section cut with the farthest set displaying plane from the referred plane in direction of the reference plane is displayed.

These, and other, features of claims 54-56 are patentably distinguishable from the cited art, and they are submitted to be allowable for the recitations therein.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: August 30, 2004

By: Paul W. Bobowiec
Paul W. Bobowiec
Registration No. 47,431

1201 New York Avenue, NW, Suite 700
Washington, D.C. 20005
Telephone: (202) 434-1500
Facsimile: (202) 434-1501

IN THE DRAWINGS:

The attached drawing(s) include changes to FIGS. 14, 16, and 24. The sheet containing FIG. 14 replaces the original sheet including FIG. 14. The sheet containing FIG. 16 replaces the original sheet including FIG. 16. The sheet containing FIG. 24 replaces the original sheet including FIG. 24. In each of FIGS. 14, 16, and 24, the "windows" for the "pull-down windows" are separated. In FIG. 14, the left-most "pull-down window" moved on the sheet. In FIG. 16, the term --dtmoo12-- is replaced with the term "dtm0012." For the convenience of the Examiner, annotated sheets showing the changes made are attached. Approval of these changes to the Drawings is respectfully requested.

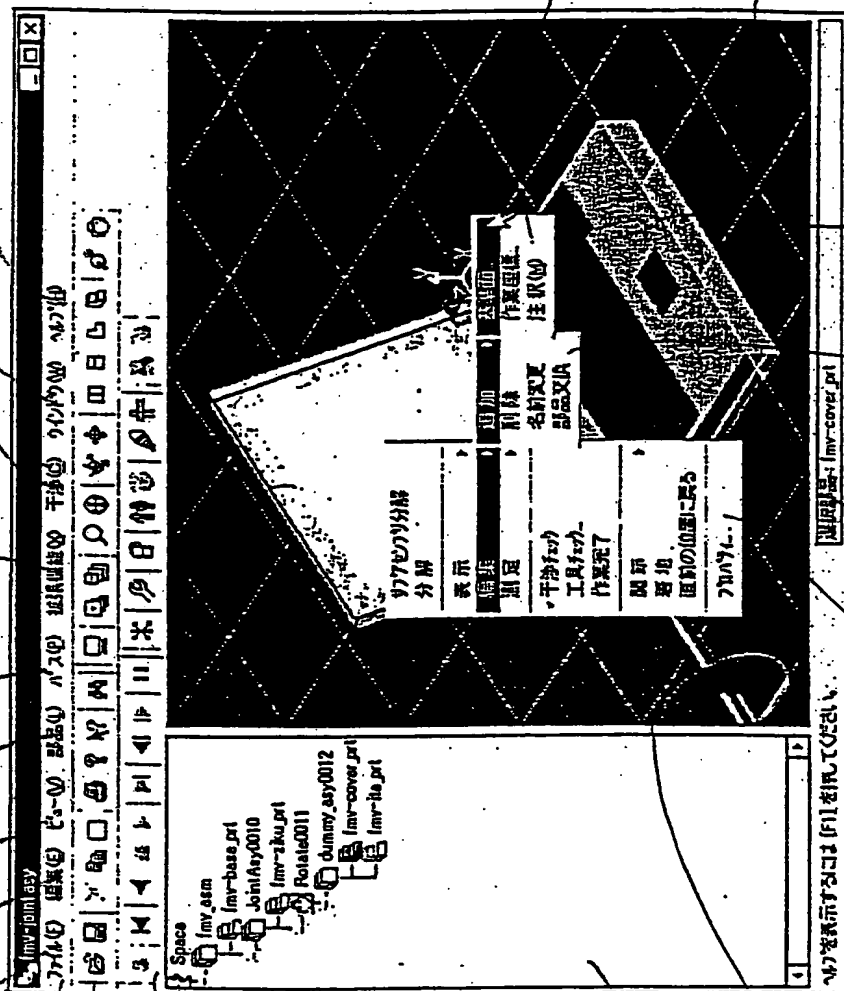


ATTACHMENT TO THE AMENDMENT
FILED AUGUST 30, 2004
SERIAL NO. 09/513,855



ANNOTATED SHEET

File(F), Edit, View, Parts, Path(P), Expansion function(X), Interference(C)
Window(W), Help(H)



bassembly
composition

composition

play

it

asuring

erference check

ol check

ork completed

int

nding

turn to just
fore position

operty

Add

Delete

Rename

Parts exchange

Reference Plane

Work coordinate

Reference(M)

Selected Parts

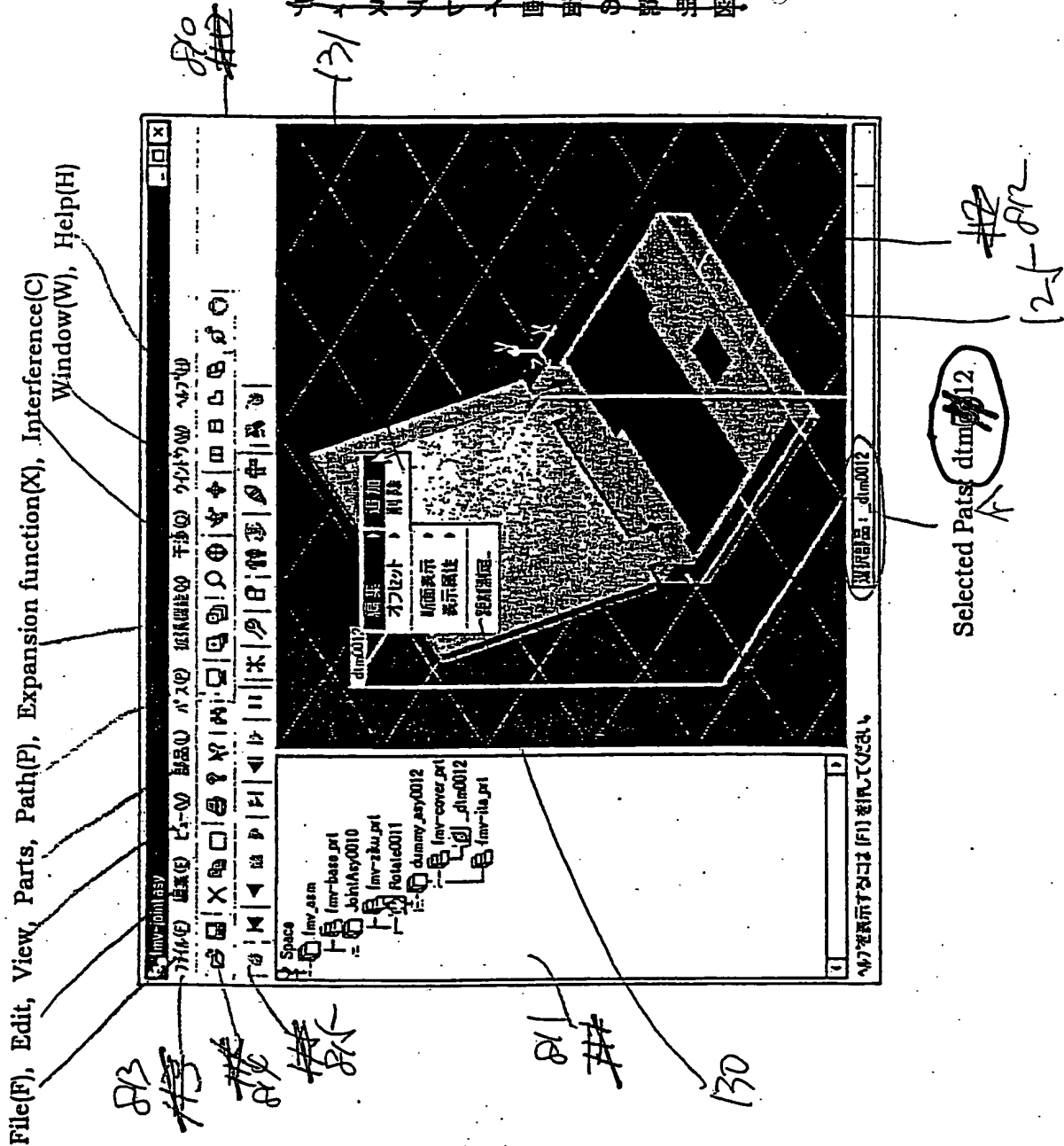
FIGURE 14

ANNOTATED SHEET

整理番号: 99-50109

【図18】

ディスプレイ画面の説明図



Edit	Add
Offset	Delete
Displaying Section	
Display Attribute	
Measuring Distance	

FIGURE 16

ANNOTATED SHEET

特許番号: 99-60103

File(F), Edit, View, Parts, Path(P), Expansion function(X), Interference(C)
Window(W), Help(H)

図 24

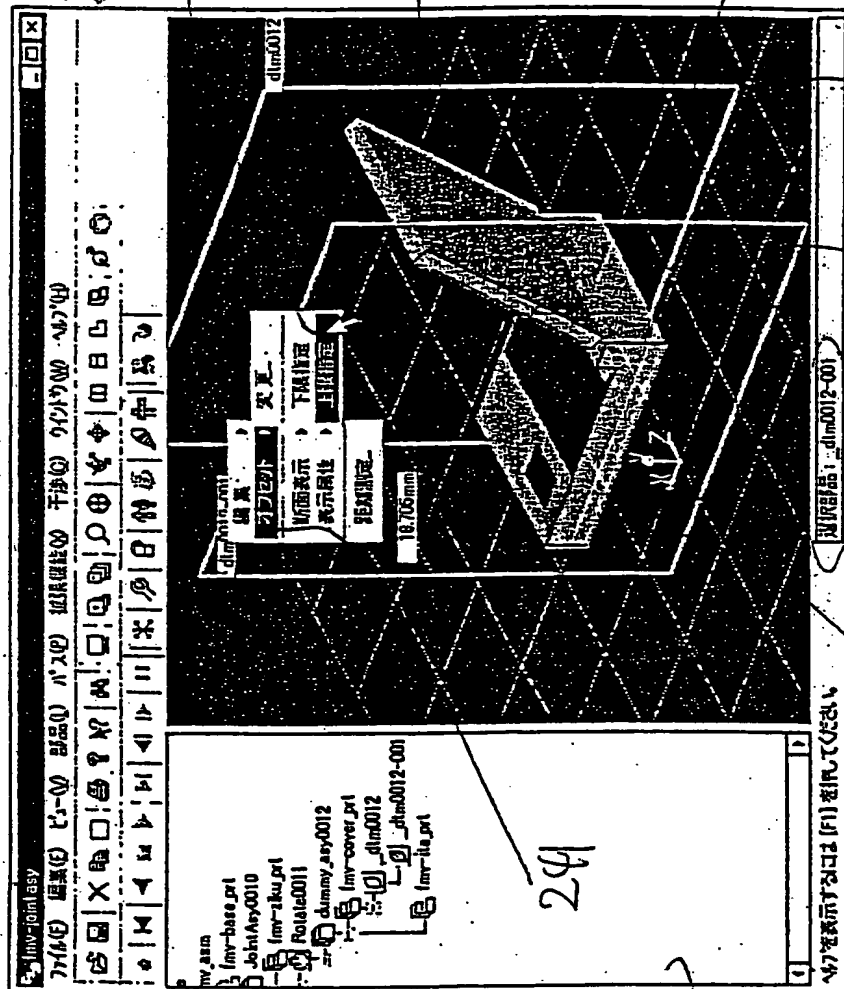
810

110

242

127

211



812

Selected parts: dtm0012-001

212

FIGURE 24

Edit	
Off set	Change
Displaying section	Designation of lower limit
Display attribute	Designation of upper limit
Measuring distance	

811